

TOPIC: I - Materials Technology
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Results from the European Integrated Project “New Materials for Extreme Environments (ExtreMat)”

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The goal of the European Integrated Project “ExtreMat” is to provide and to industrialize new materials and their compounds for applications in extreme environments that are beyond reach with incremental materials development only.

The R&D activities in this project aim to provide

- a) self-passivating protection materials for sensitive structures operated in physico-chemically aggressive environments at high temperatures;
- b) new heat sink materials with the capability of very efficient heat removal, often at very high temperature level;
- c) radiation resistant materials for very high operation temperatures;
- d) new processing routes for complex heterogeneous compounds that can be operated in extreme environments.

Key applications for these new materials are in the sectors of fusion, advanced fission, space, and electronic applications. Further use of these materials is expected in spin-off fields, such as brake applications and energy conversion.

The project started in December 2004 for a duration of five years and is supported by the European Community. The 37 project participants are from 13 EU member states and include 6 universities, 7 research institutes, 10 research centres and 14 industrial companies.

Research results regarding the development of materials for application in nuclear fusion, especially on protection, heat sink, and radiation resistant materials will be presented. A view to other applications of these materials in the fields of fission, space and electronics will be given in the presentation.

ExtreMat Project Partners: see <http://www.extremat.org/>